



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,840	02/19/2002	Scott A. Wellman	4082-000001	5458

27572 7590 07/28/2003

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

BOYD, JENNIFER A

ART UNIT	PAPER NUMBER
----------	--------------

1771

DATE MAILED: 07/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 10/079,840	Applicant(s) WELLMAN ET AL.	
	Examiner Jennifer A Boyd	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>10/28/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 - 10 and 14 - 20, drawn to a composite structure, classified in class 442, subclass 181.
 - II. Claims 11 - 13, drawn to a method for providing a composite material, classified in class 264, subclass various.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as applying heat to polymer film in order to impregnate the parallel fibers.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Christopher Eusebi on July 3, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1- 10 and 14 - 20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11 - 13 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 1771

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 5, 7 – 8 and 9 – 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Dyksterhouse (US 6,524,690).

Dyksterhouse is directed to novel preregs useful for creating articles such as leaf springs (column 8, lines 29 – 35).

As to claims 1, 5 and 9, Dyksterhouse teaches a prepreg, equated to Applicant's "laminate", comprising a fiber reinforcement and an impregnating polymer resin (columns 3 and 4). Dyksterhouse teaches that the fiber reinforcement is made of glass such as e-glass, carbon or aramid fibers (column 3, lines 30 – 45) as required by claim 5 and can be in the form of unidirectional filament tow or woven materials (column 7, lines 36 – 39) as required by claim 9. It should be noted that, according to *Complete Textile Glossary* by Celanese Acetate, **filaments**

Art Unit: 1771

are defined as fibers of an indefinite or extreme length, therefore, the fibers of Dyksterhouse are considered to be continuous. Dyksterhouse teaches that the prepreg can be in a prepreg roll form (column 7, lines 49 – 51); it should be noted that the term “roll” is commonly synonymous with the term “coil”.

As to claim 7 and 8, Dyksterhouse teaches that the prepreg, or “laminate”, can also contain random or chopped materials (column 7, lines 36 – 40) which is equated to Applicant’s “spanner”.

As to claim 10, it should be noted that according to *Complete Textile Glossary* by Cellulose Acetate, **yarn** is a generic term for a continuous strand of textile fibers, filaments, or material in a form suitable for knitting, weaving, or otherwise intertwining to form a textile fabric. Yarn can occur in the form of a single filament with or without twist. Therefore, the filament tow can be generically referred to as a yarn.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 – 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyksterhouse (US 6,524,690) in view of Odagiri et al (US 5,789,073).

As to claim 2, Dyksterhouse teaches the claimed invention except fails to disclose that the laminate has chopped fibers on its surface.

Odagiri teaches a composite comprising (A) long reinforcing fibers, (B) a

Art Unit: 1771

matrix resin mixed with the long reinforcing fibers and (C) a resin, preferably in the form of fine resin particles forming a phase separate from the matrix resin (Abstract). The long reinforcing fibers (A) are equated to Applicant's "continuous reinforcement fibers" and the matrix resin (B) is equated to Applicant's "polymer matrix". Odagiri teaches that the resin (C) can be in the form of short cut filaments (column 11, lines 1 – 5). Odagiri teaches that the fine particle resin is present on the surface layer of the prepreg to improve impact resistance (column 7, lines 47 – 53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add chopped fibers as suggested by Odagiri on the surface of the laminate of Dyksterhouse motivated by the desire to improve the impact resistance of the laminate.

As to claims 3 - 4, Dyksterhouse in view of Odagiri discloses the claimed invention except for that 10 – 30% of the fibers are chopped fibers as required by claim 3 and that 20% of the fiber is chopped fiber as required by claim 4. It should be noted that the amount of chopped fiber is a result effective variable. For example, as the amount of chopped fiber increases, the impact resistance increases. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a laminate comprising 10 – 30% of the fibers are chopped fibers as required by claim 3 and that 20% of the fiber is chopped fiber as required by claim 4 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the level of chopped fibers to create the appropriate level of impact resistance and other surface qualities.

10. Claims 6 and 15 - 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyksterhouse (US 6,524,690) in view of Fesko (US 4,374,170).

As to claim 6, Dyksterhouse teaches the use of polyvinyl resins in the prepreg, or "laminate" (column 5, lines 21 - 23). However, Dyksterhouse fails to disclose the specific use of polyvinyl ester resin.

Fesko teaches a prepreg of two or more arrays of glass roving which has been coated or impregnated with preferably a thermosetting polyester resin (Abstract). Fesko teaches the prepreg is suitable for leaf springs (column 2, lines 35 - 45). Fesko teaches the use of a vinyl ester resin in the prepreg (column 6, lines 50 - 55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use vinyl ester as suggested by Fesko in the laminate of Dyksterhouse motivated by the desire to have uniform curing resulting in improved physical characteristics of the laminate (column 6, lines 38 - 44).

As to claims 15 - 16, Dyksterhouse in view of Fesko discloses the claimed invention except for that 10 - 30% of the fibers are chopped fibers as required by claim 15 and that 20% of the fiber is chopped fiber as required by claim 16. It should be noted that the amount of chopped fiber is a result effective variable. For example, as the amount of chopped fiber increases, the impact resistance increases. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a laminate comprising 10 - 30% of the fibers are chopped fibers as required by claim 15 and that 20% of the fiber is chopped fiber as required by

Art Unit: 1771

claim 16 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the level of chopped fibers to create the appropriate level of impact resistance and other surface qualities.

As to claims 14 and 17 - 19, the limitations of patent are discussed above.

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyksterhouse (US 6,524,690) in view of Fesko (US 4,374,170) and Krause (US 4,451,528).

As to claim 20, Dyksterhouse in view of Fesko teaches a fiber-reinforced laminate comprising vinyl ester resin, however, fails to disclose that the fibers applied on the surface of the laminate comprises e-glass, Kevlar or carbon fiber.

Krause teaches a composite fiber reinforced plastic member (Abstract). Krause teaches that the composite fiber reinforced member comprises a body or web comprised of a glass fiber reinforced thermosetting resin matrix having a carbonized fiber reinforced compatible resin stratum integrally bonded by the resin matrix over elected areas of anticipated high stress (Abstract).

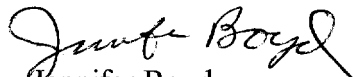
It would have been obvious to one of ordinary skill in the art at the time the invention was made to use carbonized fibers as suggested by Krause on the surface of the laminate of Dyksterhouse in view of Fesko motivated by the desire to create a laminate of high impact resistance due to the high-strength and high modulus of carbon fibers.

Art Unit: 1771

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 703-305-7082. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jennifer Boyd
July 20, 2003

